# MEADOW CREEK RESTORATION 9607700

**SHORT DESCRIPTION:**

This is a restoration project encompassing a watershed of 9,770 hectares (24, 115 acre), Emphasis will be placed on restoring the 294 hectare (725 acre) McComas Meadow. Land management including mining, cattle grazing, road construction, timber harvest, and irrigation have impacted stream channel stability and fish habitat. This project will help increase egg to fry survival of Snake River fall Chinook (Oncorhynchus tshawytscha). Improved habitat in Meadow Creek will help increase natural production of Snake River spring/summer chinook salmon, steelhead and resident trout. The watershed is currently under U.S. Forest Service management. Meadow Creek (17060305-07) enters the South Fork Clearwater River (17060305) at river kilometer 52.3. The stream is approximately 30 miles east of Grangeville, Idaho.

**SPONSOR/CONTRACTOR:** USFS

USDA Forest Service, Clearwater Ranger District, Nez Perce National Forest

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**SUB-CONTRACTORS:**

Nez Perce Tribe, Salmon Corps

## GOALS

**GENERAL:**

Supports a healthy Columbia basin, Maintains biological diversity, Increases run sizes or populations, Provides needed habitat protection

**ANADROMOUS FISH:**

Habitat or tributary passage

**NPPC PROGRAM MEASURE:**

2.1

**RELATION TO MEASURE:**

Up slope sediment sources will be stabilized, in channel fish habitat will be improved, and smolt survival will be increased.

**OTHER PLANNING DOCUMENTS:**

Wy Kan Ush Me Wa Kush Wit, McComas Meadow/Meadow creek

| TARGET STOCK | LIFE STAGE | MGMT CODE (see below) |
|---|---|---|
| Bull trout | Adult, juvenile | W, N |
| Westslope cuthroat | Adult, juvenile | W, N |
| Snake River Spring/Summer Chinook | Adult, juvenile | S, W |
| Snake River Steelhead | Adult, juvenile | (P), S |
| Snake River Fall Chinook | Juvenile | (L), S, W, d |

| AFFECTED STOCK | BENEFIT OR DETRIMENT |
|---|---|
| Bald Eagle | Beneficial |

## BACKGROUND

**STREAM AREA AFFECTED**

**Stream name:**

Meadow Creek

**Stream miles affected:**

15

**Hydro project mitigated:**

**LAND AREA INFORMATION**

**Subbasin:**

South Fork Clearwater River

**Land ownership:**

public

**Acres affected:**

| | |
|---|---|
| Harpster Dam | 24,000 |
| | **Habitat types:** |
| | pool, riffle, run |

# PURPOSE AND METHODS

**SPECIFIC MEASUREABLE OBJECTIVES:**
To reduce stream temperatures and improve fish habitat in Meadow Creek. To improve watershed conditions in the South Fork Clearwater River and aid in the recovery of Snake River spring/summer, and fall chinook salmon.

**BIOLOGICAL NEED:**
The Biological Assessment for the South Fork Clearwater River (March 1995) has determined that land management activities in the basin have the potential to impact critical habitat for listed Snake River fall chinook salmon. The South Fork Clearwater River is a degraded system with the potential to assist in the recovery of listed and non-listed anadromous and resident fish including spring summer chinook, steelhead, westslope cutthroat, and bull trout. The Nez Perce Forest is currently developing a watershed restoration plan for the South Fork Basin. The Meadow Creek Project will serve as a corner stone for this recovery effort. Improved stream temperatures and reduced sediment will benefit all life stages of resident and anadromous fish.

**HYPOTHESIS TO BE TESTED:**
We have limited funding, and we want the largest benefit for the least investment. 1. We can reduce overall stream temperatures by planting along the stream corridor. 2. We can increase bank stability with riparian planting.

**ALTERNATIVE APPROACHES:**
Instream structures were discussed and quickly dismissed in this meadow reach. Large scale channel alterations were also dismissed.

**JUSTIFICATION FOR PLANNING:**
N/A

**METHODS:**
This project will involve four emphasis areas: (1) Fencing of the riparian corridor and revegetation. (2) Wetland creation and stream channel modifications. (3) Road Rehabilitation and sediment mitigation. (4) Information and Education. The projects have been developed to illustrate an ecosystem approach to restoring listed Snake River salmon and resident fish by improving overall watershed conditions. Funding may be allocated for any or all phases of the project.
Riparian Improvements.
Riparian management is a key element in the recovery of the Meadow Creek stream system, Several positive actions have taken place within this area to improve the degraded riparian conditions. These activities include riparian planting, exclusion of livestock grazing, and numerous road stabilization projects. However, despite these actions, many more riparian enhancing activities are necessary to accelerate the recovery of this area.
When the Forest Service acquired McComas Meadows through a land exchange they incurred the conditions of the existing deteriorated fence. Because McComas Meadows has been the operating hub of four livestock grazing permits it is paramount to upgrade the existing fence to exclude livestock, Approximately 4 miles of perimeter fence is needed to replace the existing deteriorated fence.
Planting native hardwoods and grasses.
As a result of overgrazing in the once privately owned McComas Meadows, riparian vegetation conditions have been reduced from a diverse vegetation community having an overstory shrub layer, to a mostly herbaceous vegetation community that lacks an essential mid and overstory shrub component. Riparian planting would gradually build the structural diversity of the riparian area, provide tooting strength to unstable stream banks, and provide shade along the stream margins resulting in a reduction in stream water temperatures. Meadow Greek flows through the meadow for 2.2 miles.
To ensure the successful riparian plant restoration of the meadow. the FS contracted with Botanical Enterprises to develop management recommendations for McComas Meadows. The riparian planting proposal below represents recommendations from that report (Bursick 1995). This project will plant alder, willow, red osier dogwood and various other species native to the

riparian habitat. Baseline information has documented channel profiles and vegetation communities. Fixed stations are in place to record the changes.

Creating and Re-Creating Wetlands, and Channel Modifications

Lentic wetlands are rare throughout the Nez Perce Forest. One such wetland exists in McComas Meadow (McComas Meadows Vegetation and Floristic surveys and Management Recommendations, R. Bursik, 1995). This wetland supports a small disjunct population of Buxbaum's sedge a rare plant in Idaho. The wetland has been ditched and it's ability to filter out sediment has been reduced. Drainage ditches will be removed and wetland sites will be increased on the meadow. A gravity-flow irrigation ditch rings McComas Meadow on either side of Meadow Creek. By use of intra-ditch check dams, these ditches can be made to hold water later into the year, providing both sediment settling ponds and habitat for breading amphibians. The stream channel will require some modification on meander bends to allow for channel stabilization and revegetation. Cost for this project is estimated to be $30,000.00.

Road Rehabilitation

Road Stabilization projects to reduce non-point sediment sources have been identified in the watershed (K. Newgard 1995). The current road density is 3 miles/square mile. Site plans call for increased drainage, road obliteration, and revegetation using native species. Cost for this project is estimated to be $50,000.00.

Upland Vegetation Management

Historically, the Meadow Creek watershed contained extensive stands of fire-climax ponderosa pine. These stands were maintained in an open, park-like structure by repeated underburns. Due to fire exclusion and timber harvest, the fire-climax forest has been replaced by a dense, mixed conifer forest. This now forest structure is highly susceptible to root rot disease and subsequent stand-replacing burns. When the stand-replacing fires occur, the impact to the surrounding watershed is far greater than that which occurred historically. In order to restore the stability of these upland plant communities, decrease the list of stand replacing fire (and subsequent watershed deterioration), and improve wildlife habitat, restoration of the natural fire regime is required. It is estimated that 1, 000 acres of former fire-climax ponderosa pine habitat is present in the watershed. Reintroducing the natural fire regime would require underburning 250 acres each year over a four year period. Total project cost = $30,000.

Information and Education

Meadow Creek is listed in the Idaho Wildlife Viewing Guide. There is an existing display at the mouth of the stream detailing the BPA funded work on the migration barrier. The McComas Meadow site lends itself to interpretive signing as well as to educational demonstrations. Cost for this portion of the project is estimated to be $10,000.00.

## PLANNED ACTIVITIES

**SCHEDULE:**

**Planning Phase** **Start** 3/97 **End** 10/00 **Subcontractor** No

**Task** Planting - Cultural clearance, ordering materials, hiring crew, collection of seed

**Planning Phase** **Start** 4/97 **End** 10/00 **Subcontractor** No

**Task** Burning - burn plan

**Planning Phase** **Start** 5/97 **End** 10/00 **Subcontractor** No

**Task** Wetland Creation and Channel Alterations - Design contract, cultural clearance, NEPA, Biological Assessment, field inventories, 404 Permit

**Planning Phase** **Start** 6/97 **End** 6/99 **Subcontractor** No

**Task** Road and Watershed Rehabilitation - Work will require NEPA, cultural clearance field inventories, project design, and Biological Assessment (BE/BA).

**Planning Phase** **Start** 6/97 **End** 6/99 **Subcontractor** No

**Task** Information and Education - Scoping, working with project partners, design.

**Planning Phase** **Start** 6/97 **End** 10/97 **Subcontractor** No

**Task** Monitoring - Develop monitoring plan. Purchase needed equipment.

**Planning Phase** **Start** 3/97 **End** 7/97 **Subcontractor** No

**Task** Fencing - Access coordination, purchasing, cultural clearance

**Implementation Phase** **Start** 5/97 **End** 10/00 **Subcontractor** No

**Task** Burning - set water lines, ignition

**Implementation Phase** **Start** 5/97 **End** 10/00 **Subcontractor** No

**Task** Planting - planting riparian hardwoods, spring and fall planting

**Implementation Phase** **Start** 6/98 **End** 10/00 **Subcontractor** No

**Task** Wetland Creation and Channel Alterations - Drainage ditches will be dammed to raise the water table. Selected meander bends will be modified and stabilized.

**Implementation Phase** **Start** 7/97 **End** 11/99 **Subcontractor** No

**Task** Road and Watershed Rehabilitation - Sediment sources associated with roads, drainage ditches, and naturally unstable sites will be stabilized.

**Implementation Phase** **Start** 6/98 **End** 12/98 **Subcontractor** No

**Task** Information and Education - Project area will be signed

**Implementation Phase** **Start** 5/97 **End** 10/10 **Subcontractor** No

**Task** Monitoring - Air and water temperature will be monitored. Aerial photos and channel profiles will record width:depth ratio, and vegetation recovery. Redd surveys will be conducted.

**Implementation Phase** **Start** 5/97 **End** 10/98 **Subcontractor** Yes

**Task** Fencing - Locate fence line, build fence

**O&M Phase** **Start** 11/98 **End** 10/00 **Subcontractor** No

**Task** Information and Education -taking down and storing signs

**O&M Phase** **Start** 5/98 **End** 10/00 **Subcontractor** No

**Task** Fencing Maintenance

**O&M Phase** **Start** 9/97 **End** 10/00 **Subcontractor** No

**Task** Planting - vexar may be needed to protect the plants from wildlife

**O&M Phase** **Start** 5/99 **End** 10/00 **Subcontractor** No

**Task** Burning Wetland Creation and Channel Alterations - design modifications

**O&M Phase** **Start** 6/98 **End** 11/00 **Subcontractor** No

**Task** Road and Watershed Rehab - follow up mitigation

**PROJECT COMPLETION DATE:**

2000

**CONSTRAINTS OR FACTORS THAT MAY CAUSE SCHEDULE OR BUDGET CHANGES:**

Introducing fire to the forested ecosystem has risks. The Forest has experience with this practice and records show no adverse impact to the aquatic environment.

# OUTCOMES, MONITORING AND EVALUATION

**SUMMARY OF EXPECTED OUTCOMES**

**Expected performance of target population or quality change in land area affected:**

Water temperatures have been documented (Nez Perce Trial Fisheries unpublished) as increasing 10 degrees C from the top of the McComas Meadow to the bottom (2.2 mi.). This project will decrease water temperatures in Meadow Creek. Suspended sediment from the South Fork Clearwater River has the potential to impact critical habitat for listed Snake River fall chinook salmon. This project will help stabilize Meadow Creek and decrease suspended sediment in the basin. Meadow Creek currently supports a small run of steelhead trout. Historic surveys document the presence of bull trout, westslope cutthroat, and chinook salmon. The Nez Perce Forest is committed to recovery of these species and overall ecosystem restoration and protection. The

project will benefit from a holistic approach to species recovery and watershed restoration.

**Present utilization and convservation potential of target population or area:**
Juvenile spring/summer Snake River chinook (80,000) were out planted in Meadow Creek in 1988. We observed nine adult salmon returning following this release. No chinook have been observed since 1993. Redd surveys in 1992 counted 1 salmon redd and 4 steelhead redds. Redd surveys in 1993 counted 8 salmon redds and 2 steelhead redds. The potential escapement for Meadow Creek is 150 spring chinook and 150 summer steelhead based on 15 miles of habitat and 10 adults per mile.

**Assumed historic status of utilization and conservation potential:**
It can be assumed that Meadow Creek produced to its potential. Artifacts found in the area indicate use by early man, and Nez Perce history tells of fishing salmon in the meadow.

**Long term expected utilization and conservation potential for target population or habitat:**
The long term goal will be to produce a harvestable population of salmon and steelhead.

**Indirect biological or environmental changes:**
Increased anadromous fish populations will benefit bull trout in the South Fork Clearwater River. Amphibian habitat will be expanded and improved. Improved riparian vegetation will support numerous bird and small mammal populations.

**Physical products:**
Four miles of perimeter fence, 50-100 acres of sediment mitigation, 5-10 acres of wetland creation.

**Environmental attributes affected by the project:**
Summer water temperatures are high(>20 degrees Centigrade). The width: depth ratio for Meadow Creek is high. Suspended and bedload sediment is above natural levels.

**Changes assumed or expected for affected environmental attributes:**
Summer water temperatures will be lowered to meet State water quality standards. The width: depth ratio will be lowered. The suspended and bedload sediment will be reduced.

**Measure of attribute changes:**
The pool:riffle ratio in McComas Meadow will be 60:40, and pool quality will increase.

**Assessment of effects on project outcomes of critical uncertainty:**
The uncertainties associated with salmon and steelhead in the Snake River are extreme. The focus of this project will be on measurable physical parameters which will increase smolt production assuming the runs continue.

**Information products:**
Improved water temperatures compared to past measurements. A decreased width: depth ratio linked to improved land management. Sediment mitigation examples. A high profile cooperative watershed restoration effort involving State, Federal Tribal, BPA and private entities.

**MONITORING APPROACH**

**Provisions to monitor population status or habitat quality:**
Base line date includes water temperature monitoring above and below the meadow, aerial photos, and channel transects (surveyed). Woody stem revegetation surveys have been established. Redd surveys have been conducted as well as stream surveys.

**Data analysis and evaluation:**
Water temperature and width: depth ration will be compared to undisturbed channels in a similar setting. Aerial photos will be c

ompared to baseline photos to measure changes.

**Information feed back to management decisions:**
Constant review and evaluation will take place. New information will be shared with all parties and adjustment to planned actions will be taken incorporating new information.

**Critical uncertainties affecting project's outcomes:**
N/A

**EVALUATION**
The partners working on this project will provide for a wide audience. The site is highly visible, and easily accessed. Increased salmon and steelhead spawning in McComas Meadow will be a good measure of success.

**Incorporating new information regarding uncertainties:**
Changes will be made to incorporate new information.

**Increasing public awareness of F&W activities:**
This effort will be tied in to the Clearwater Basin Advisory Group established by the State of Idaho to implement the Federal Clean Water Act.

# RELATIONSHIPS

| RELATED BPA PROJECT | RELATIONSHIP |
|---|---|
| 8400500 | The USFS/BPA Project 84.5 agreement was amended in May, 1985 to include modification of a partial migration barrier in Meadow Crook (South Fork Clearwater River Habitat Enhancement, April 1992, Activities under this proposal will build on actions completed under the previous contract. This project improved fish passage into Meadow Creek. |

| RELATED NON-BPA PROJECT | RELATIONSHIP |
|---|---|
| McComas Meadows/Idaho Soil Conservation Commission, Bring Back the Natives, Idaho Chapter American Fisheries Society, Nez Perce Chapter of Trout Unlimited, Department of the Interior Bureau of Land Management, Nez Perce Tribe, USFS, Idaho Department of Fish and Game | Activities under this proposal will build on work completed by the Bring Back the Natives project. |

**OPPORTUNITIES FOR COOPERATION:**
The current proposal is supported by BPA funding to the Nez Perce Tribe in addition to the funding requested under this proposal. The cooperation will continue between the Clearwater Ranger District and the Nez Perce Tribe. The Idaho Chapter of the American Fisheries Society has adopted the McComas Meadow restoration project as a demonstration site with the promise of continued scientific and financial support. The remaining partners involved in the BBN project mentioned above, are showing continued support.

# COSTS AND FTE

**1997 Planned:** $55,000

**FUTURE FUNDING NEEDS:**

| FY | $ NEED | % PLAN | % IMPLEMENT | % O AND M |
|---|---|---|---|---|
| 1998 | $50,000 | 10% | 80% | 10% |

**PAST OBLIGATIONS (incl. 1997 if done):**

| FY | OBLIGATED |
|---|---|
| 1996 | $737,600 |

| | | | | | |
|---|---|---|---|---|---|
| 1999 | $37,000 | 10% | 80% | 10% | TOTAL: $737,600 |
| 2000 | $14,500 | 10% | 80% | 10% | |
| 2001 | $2,000 | 5% | 90% | 5% | Note: Data are past obligations, or amounts committed by year, not amounts billed. Does not include data for related projects. |

| FY | OTHER FUNDING SOURCE | AMOUNT | IN-KIND VALUE |
|---|---|---|---|
| 1998 | IAFS, USFS,<br>Nez Perce Tribe | $500 | $5,000 |
| 1999 | USFS,<br>Nez Perce Tribe,<br>IAFS | $5,000 | $5,000<br>$500 |
| 2000 | USFS, Nez Perce Tribe | $5,000 | $2,000 |
| 2001 | USFS, IAFS | $1,000 | $500 |

**OTHER NON-FINANCIAL SUPPORTERS:**
Trout Unlimited, ASCS, Idaho Soil Conservation Commission

**LONGER TERM COSTS:** N/A

**1997 OVERHEAD PERCENT:** 16%

**HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:**
[Overhead % not provided so BPA appended older data.]